Appl. No. 10/586,177 Response to Office Action of January 23, 2009 Docket No.: DE040018US1 Customer No. 000024737

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- 1. (currently amended) A device for navigating an instrument (4) in a body volume that is subject to a spontaneous movement that can be described by a movement parameter (E), comprising:
- a) a locating device (2) for determining the measuring a location (\underline{r}) of the instrument (4);
- b) a sensor device (5) for determining measuring the movement parameter (E); and
- c) a data processing device (10) coupled to the locating device (2) and the sensor device, wherein the data processing device comprises (5) and comprising a movement model (11) that describes the spontaneous movement of the body volume as a function of the movement parameter (E), wherein with (i) the aid of the movement model, (ii) a current measured location (r) and (iii) an associated current movement parameter, the data processing device (10) is designed to correlate calculates an estimated movement-compensated location ($\underline{r} + \underline{\Delta}$), corresponding to the current measured location (\underline{r}) plus a vectorial displacement ($\underline{\Delta}$), of the instrument that the instrument would have in a reference phase (E₀) of the spontaneous movement with measured values of the location (\underline{r}) of the instrument (4) and of the associated movement parameter (E) with the aid of the movement model (11).
- 2. (currently amended) [[A]] <u>The</u> device as claimed in claim 1, characterized in that <u>wherein</u> the data processing device (10) is designed to reconstruct the movement model (11) from measured values for the location of the interpolation nodes and for the associated movement parameters (E).

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3. (currently amended) [[A]] <u>The</u> device as claimed in claim 2, characterized in that <u>further wherein</u> the data processing device (10) is designed to supplement the measured movement of the interpolation nodes in the movement model (11) by interpolation.

- 4. (currently amended) [[A]] <u>The</u> device as claimed in claim 2, characterized in that <u>further wherein</u> the data processing device is designed to determine, in particular from X-ray, CT or MRI recordings, measured values for the location of interpolation nodes from a series of three-dimensional images of the body volume, wherein the series of <u>three-dimensional images</u> are obtained from at least one of X-ray, CT and MRI recordings.
- 5. (currently amended) [[A]] <u>The</u> device as claimed in claim 2, characterized in that wherein the measured values for the location of the interpolation nodes of the body volume correspond to locations (\underline{r}), measured with the locating device-(2), of the instrument-(4).
- 6. (currently amended) [[A]] <u>The</u> device as claimed in claim 5, characterized in that wherein the measured locations (<u>r</u>) of the instrument (4) have been <u>are</u> obtained without moving the instrument (4) relative to the body volume.
- 7. (currently amended) [[A]] <u>The</u> device as claimed in claim 1, characterized in that <u>further wherein</u> the data processing device (10) comprises a memory containing a static image (12) of the body volume and is designed to determine the <u>estimated movement-compensated</u> location $(\underline{r} + \underline{\Delta})$, <u>estimated</u> for the reference phase (E₀), of the instrument (4) in the static image.

8. (currently amended) [[A]] <u>The</u> device as claimed in claim 1, characterized in that wherein the sensor device comprises an ECG apparatus (5) and/or an apparatus for determining the respiration phase.

- 9. (currently amended) [[A]] <u>The</u> device as claimed in claim 1, characterized in that <u>wherein</u> the locating device (2) is designed to determine the location of the instrument (4) with the aid of magnetic fields and/or with the aid of optical methods.
- 10. (currently amended) A method of navigating an instrument (4) in a body volume that is subject to a spontaneous movement that can be described by a movement parameter (E), the method comprising the following steps:
- a) measurement of the measuring a location of interpolation nodes of the body volume and of the associated movement parameters (E) in different phases of the spontaneous movement;
- b) reconstruction of reconstructing a movement model (11) for the body volume from said measured values of the location of interpolation nodes and associated movement parameters;
- c) measurement of the measuring a location (<u>r</u>) of the instrument (4) and of the <u>an</u> associated movement parameter (E); and
- d) ealculation of the calculating, with the aid of the movement model, a current measured location and an associated current movement parameter, an estimated movement-compensated position ($\underline{r} + \underline{\Delta}$), corresponding to the current measured location (\underline{r}) plus a vectorial displacement ($\underline{\Delta}$), of the instrument (4) in a reference phase (E₀) of the spontaneous movement with the aid of the movement model (11).